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## A NEW SPECIES OF TETRALONIA FROM THE DESERTS OF CALIFORNIA AND NEVADA

(Hymenoptera: Apoidea)

P. H. TIMBERLAKE

*Citrus Experiment Station, Riverside*

The following species is described at this time to provide a name for a bee that figures prominently in the pollination of *Oenothera*, and on which Drs. Linsley and MacSwain wish to publish their observations.

### *Tetralonia venusta* Timberlake, new species

This is a remarkably distinct and isolated species. It differs from usual species in the minutely and densely punctured head and thorax, densely clothed with pale pubescence, more or less fulvous dorsally, in the fine and unusually close-set scopal hair of hind tibiae and basitarsi, in the light-colored, short, thin maxillary palpi and in the cuneate pygidium, with a broad low median ridge. The female is also remarkable for the wide variation in the color pattern of the abdomen. The male is distinctive in having the sixth ventral segment well rounded at apex, with a strong, oblique crista on each side, the subgenital plate with a deep, rounded median notch, and tergite seven with a narrowly cuneate pygidiform area.

*Female*.—Black, the mandibles generally with a fulvous mark before the apex, flagellum of antennae somewhat brownish beneath, tegulae pale ferruginous, tibial spurs brownish testaceous and small joints of tarsi more or less brown. Wings grayish dusky, the nervures fuscous. Pubescence of head and thorax very dense and fine, concealing the surface of mesonotum, a little longer and less dense on cheeks and underparts of thorax, moderately dense across the middle of face, usually more or less bright fulvous but

varying to pale ochraceous, and becoming white or whitish on head, propodeum and underparts of thorax. Hair of labrum dense and ochraceous to pale fulvous. Pubescence of abdomen mostly short and appressed, but long on basal segment and lateral margins of the others, very short, erect and velvety plumose broadly across the base of tergites 3 and 4, rather longer and very dense on disk of tergite 5, thin enough on tergite 1 and across the middle of tergites 2 and 3 to expose the surface and dense and plumose on apical depression of tergites 2 to 4. In color the pubescence of abdomen takes three definite phases: (1), almost entirely white, sometimes with a blackish tinge across the base of tergite 4 and becoming brown on disk of tergite 5 and on flanks of tergite 6; (2), disk of tergites 2 to 5 black, leaving a moderately wide white band on the apical depression of tergites 2 to 4 (narrower on tergite 2) and becoming brownish fulvous very narrowly at apex of tergite 5; (3), tergites 2 to 6 almost entirely black, with a small black mark on each side of the disk of tergite 1, and with a very short whitish marginal fringe across apex of tergites 2 and 3 and one less distinct on tergite 4, these more easily seen in lateral view. Venter of abdomen with long dense fringes generally whitish across apex of segments 2 to 5. Hair of legs white, with the very dense hair on outer side of front and middle tibiae appearing whitish or pale ochraceous in some lights, but actually pale brownish, or sometimes more or less infuscated, and the hair on the inner side of middle basitarsi fulvous brown; scopal hair of hind tibiae and basitarsi unusually fine and dense, more or less grayish or pale brownish, sometimes becoming dark fulvous on inner side of basitarsi, although usually more or less completely fuscous on inner side of both tibiae and basitarsi.

Head broader than long, the inner orbits parallel. Mandibles stout, with apex rather narrow and notched, but usually worn to become broad and rounded at apex. Proboscis moderately long, the galeae with extremely sparse and minute hairs, the maxillary palpi short, more or less pale, with the three apical joints small, two of them equaling the third joint. Vertex not appreciably impressed on each side of the ocelli. Pygidium rather broad at base and cuneately narrowed to the almost acute apex, the disk with a broad median ridge and with a longitudinal and lateral curvature. Clypeus finely rugose, with the ridges mostly longitudinal. Head otherwise and the thorax moderately shining, with the punctures on the face and mesonotum extremely fine and dense. Base of propodeum with punctures dense but coarser than elsewhere, and more hairy than usual. Abdomen dullish and with microscopic punctures. Length, about 11–13 mm.; anterior wing, 8–8.5 mm.

*Male*.—Black, the labrum and clypeus white, with the clypeal mark separated from anterior end of eyes by a broad dark interval and slightly notched on each side just above the middle by the dark foveal impression in the suture. Antennae black. Tibial spurs brownish testaceous and apical joint of tarsi slightly brownish. Pubescence much as in female, but generally pale ochraceous to pale fulvous on the mesonotum. Hair of abdomen white, thin enough on the disk of the tergites to expose the dark surface,

the bands at apex of tergites 2 to 6 moderately dense but becoming denser on the apical segments, and the white hair that flanks the pygidial plate on tergite 7 very dense. Hair of legs white, but fulvous on inner side of middle and hind basitarsi; that on outer side of middle tibiae short and dense, but that on hind tibiae and basitarsi long and loose, although partly appressed down the middle of the outer side of the tibiae.

Head only a little broader than long, the clypeus moderately convex and prominent. Antennae moderately long, reaching apex of tergite 1 of abdomen, with the flagellum slender and almost filiform; joint 1 of flagellum about two-thirds as long as joint 3. Mandibles tapering and subacute at apex. Sculpture very similar to that of female except that the clypeus is much smoother. Tergite 7 with a definite pygidiform plate, which is about twice as long as wide and narrowed to rather broadly obtuse apex. Ventral segment 6 rounded at apex, and armed on the lateral borders with a rather high, sublunate crista, gradually lowered at each end but otherwise even and with a vertical wall on the exterior side. These cristae nearly as high as similar plates in the male of *T. actuosa*, but not abrupt at the ends and convergent posteriorly instead of parallel. Subgenital plate with a deep rounded notch at middle of apex and the broad rounded lobe on each side with a thin fringe of rather short hair. Ventral segment 7 curiously structured, but more in the fashion of *T. speciosa* and *T. argyrophila* than in other species; the submedian plate on each side extending straight backward nearly vertically, then bent abruptly outward and expanded into an elongate oval disk, which is obliquely inclined, about three times longer than wide, and densely covered on its outer face with extremely short and fine pubescence; lateral plates with a short blunt apical lobe and a broad quadrate exterior lobe, which lies in nearly the same plane as the oval disk of the submedian plates. Genitalia ordinary, with the parameral lobes (gonostyli) very slender to apex. Length, 10–11 mm.; anterior wing, 7–8 mm.

*Holotype female* (with pubescence of abdomen mostly as in phase one, but with some black hair on tergite four and more on tergite five) and allotype, 9.6 MILES NORTH OF SHOSHONE, INYO COUNTY, CALIFORNIA, collecting pollen from *Oenothera clavaeformis* var. *aurantiaca*, May 3, 1960 (J. W. MacSwain). Paratypes as follows: 14 females, 3 males, taken with the types (MacSwain); 79 females, 11 males, 5.5 miles north of Shoshone, females taking pollen from same flower, May 3 to 5, 1960 (E. G. Linsley and MacSwain); 1 male, three miles north of Big Pine, Inyo County, on *O. clavaeformis* var. *cruciformis*, May 27, 1959 (P. H. Raven); 1 male, Yermo, San Bernardino County, April 25, 1953 (R. O. Schuster); 1 female, Hopkins Well, west of Blythe, Riverside County, April 28, 1949 (L. W. Quate); 29 females, 18.5 miles west of Blythe (Hopkins Well area), females



taking pollen from *O. clavaeformis* var. *aurantiaca* (except one at light at nightfall), April 14 to 18, 1958 (Linsley, MacSwain, P. D. Hurd, Jr., and Timberlake); 2 females, same locality, on *Larrea divaricata*, April 14, and 16, 1958 (Hurd). NEVADA: 13 females, 14 miles south and 10 miles west of Fallon, Churchill County, taking pollen from *O. clavaeformis* var. *integrior*, June 5, 10 and 11, 1959; 1 female, 17 miles west of Wadsworth, Washoe County, on *O. clavaeformis* var. *cruciformis*, May 29, 1959 (Raven); 2 females, 1 male, 2.8 miles west of Valmy, Humboldt County, gathering pollen from *O. clavaeformis* var. *integrior*, June 14, 1960 (MacSwain).

*Tetralonia venusta carinata* Timberlake, new subspecies

The male of *carinata* is similar to *venusta*, but hair of abdomen mostly black and the antennae a little longer and more compressed. As the seventh and eighth ventral segments and genitalia seem exactly as in *venusta* the status of *carinata* cannot be more than subspecific. The unknown female of *carinata* presumably will be found to have the abdomen black and unbanded.

*Male*.—Similar to *venusta*, but labrum and clypeus pale yellow with a similar spot at base of mandibles in two out of three specimens. Antennae longer, reaching nearly to apex of tergite 2 of abdomen, the flagellum somewhat compressed instead of almost filiform. Pygidial plate of tergite 7 narrower, more nearly acute at apex, with the median carina weak, and the disk sometimes reddened. Lateral cristae of ventral segment 6 considerably less elevated than in *venusta*, but seventh and eighth ventral segments and genitalia apparently the same. Pubescence of head and thorax the same as in *venusta*, but that of the abdomen shaggier, erect and flaring, although short except on the basal segment and on lateral margins of other segments; hair of tergites 1 and 2 pale ochraceous or whitish, that on the disk of tergites 1 and 2 pale ochraceous or whitish, that on the disk of tergites 3 to 6 black, but with a very broadly interrupted, thin and narrow whitish band on the apical depressions, merging laterally into the light hair on each side of the same segments. Length, 11–11.5 mm.; anterior wing, 7–8 mm.

*Holotype male* from the PINNACLES NATIONAL MONUMENT, SAN BENITO COUNTY, CALIFORNIA, May 19, 1941 (J. W. MacSwain); one male (paratype), Idria, San Benito County, June 15, 1955 (M. Wasbauer); and one male (paratype), Dardanelles, Tuolumne County, June 26, 1951 (MacSwain).

Types of *venusta* and *carinata* in collection of the Citrus Experiment Station, and paratypes in collection of the California Insect Survey, University of California, Berkeley.